

Cave Swallows  
Lesson 6  
Carlsbad Caverns and Classroom

**Data Collection and Analysis**

**Learner Outcomes**

The learner will

- Use proper field methods for data collection.
- Handle and process living specimens and release them safely and correctly.
- Construct life tables based on data collection.

**Background**

Since 1980, cave swallows have been banded and studied at Carlsbad Cavern and other area caves in the Guadalupe Mountains. These studies have produced voluminous amounts of data on a species that is still relatively unknown.

**Materials**

- Supplement numbers 4.1, 4.2, 4.9 through 4.16
- Mist net
- Banding pliers
- Banding poles
- Pesoli scales
- Metric ruler
- Video (Contact Carlsbad Caverns NP for loan)

**Assessments**

- Post-test
- Fieldwork
- Life table
- Extra-credit presentations

Activity #1  
**Video**  
1 class period

**Procedure**

The teacher will

- Show video of cave swallow banding session and discuss it prior to actual field trip

Activity #2  
**Banding and Collecting Data**  
4-hour banding session

**Procedure**

The Principal Investigator will

- Review with students the field protocol for handling and observing birds.

- Model the safe handling of birds and explain the importance of safe handling of birds.
- Explain the importance of recording data accurately.
- Explain that handling birds improperly; collecting data improperly; or endangering themselves, other participants or the birds will result in the immediate and permanent removal from the project.
- Demonstrate the handling of birds.
- Team inexperienced students with experienced students. Inexperienced students will begin by handling nets and poles.
- Allow students to assist in transcribing data after having handled nets and poles.
- Demonstrate how to remove birds from the mist net and collect data.
- Instruct the students as to what data should be recorded. The students will record the following items: band number, age, sex, left wing measurement, right wing measurement, tail measurement, weight, presence of brood patch, presence of ectoparasites, plumage abnormalities, whether or not the bird is carrying insects (if so, what kind), presence of mud for construction/repair of nests and other data as may be observed in the field.

Activity #3

**Data Input**

1 hour minimum

**Procedure**

The teacher will

- Allow students to input data from the previous banding session at Carlsbad Cavern. The data will include the following where applicable: band number, age, sex, left wing measurement, right wing measurement, tail measurement, weight, presence of brood patch, presence of ectoparasites, plumage abnormalities, whether or not the bird is carrying insects (if so, what kind), presence of mud for construction/repair of nests and all other data that is noted in the field.

Activity #4

**Construction of Life Tables**

4 class periods

**Procedure**

The teacher will

- Instruct students to use Supplement number 4.15 to note the date HY birds were initially banded.
- Instruct students to note each encounter of each individual bird.
- Have students determine the number recorded in each subsequent year that were noted and the survival percentage to the end of that year.
- Have students follow through each subsequent year of data until no additional encounters are noted.
- Instruct students to develop a life table based on the survival percentage of each subsequent year.

Activity #5

**Cave Swallow Presentation**

8 hours preparation; 30 minutes delivery

**Procedure**

The teacher will

- Allow extra credit to students who develop educational children's programs about cave swallows and deliver their programs at Carlsbad Caverns, an elementary classroom or some other location.

Activity #6

**Post-test**

30 minutes

**Procedure**

The teacher will

- Administer post-test to assess knowledge gained.